

# Toxoplasmosis

# Toxoplasmosis

## ❖ Introduction :-

- Toxoplasmosis is caused by infection with the protozoan **Toxoplasma gondii**.
- An obligate intracellular parasite.
- Human infection occurs via:-
  - ✓ Oocyst-contaminated soil, salads and vegetables.

Or

- ✓ By ingestion of raw or under-cooked meats containing tissue cysts.

# Toxoplasmosis

## ❖ Introduction :-

- Sheep, pigs and rabbits are the **most common meat sources**.
- Outbreaks of toxoplasmosis have been linked to the consumption of unfiltered water.
- In developed countries, toxoplasmosis is the most common protozoal infection.

# Toxoplasmosis

## ❖ Introduction :-

- Most primary infections are **subclinical**.
- **In HIV-1 infection**, toxoplasmosis is an important opportunistic infection with considerable morbidity and mortality.
- Generalized toxoplasmosis has been described after accidental laboratory
- Infection with highly virulent strains.

# Toxoplasmosis

## ❖ Introduction :-

# Toxoplasmosis

## ❖ life cycle :-

➤ **Toxoplasma gondii** life cycle, divided to two phases :-

### ☐ **The sexual phase:-**

- ✓ occurs in the small intestinal epithelium of the domestic cat.
- ✓ Oocysts are shed in cat feces, and are spread to intermediate hosts (pigs, sheep and also humans) through widespread contamination of soil.
- ✓ Oocysts may survive in moist conditions for weeks or months.

# Toxoplasmosis

## ❖ life cycle :-

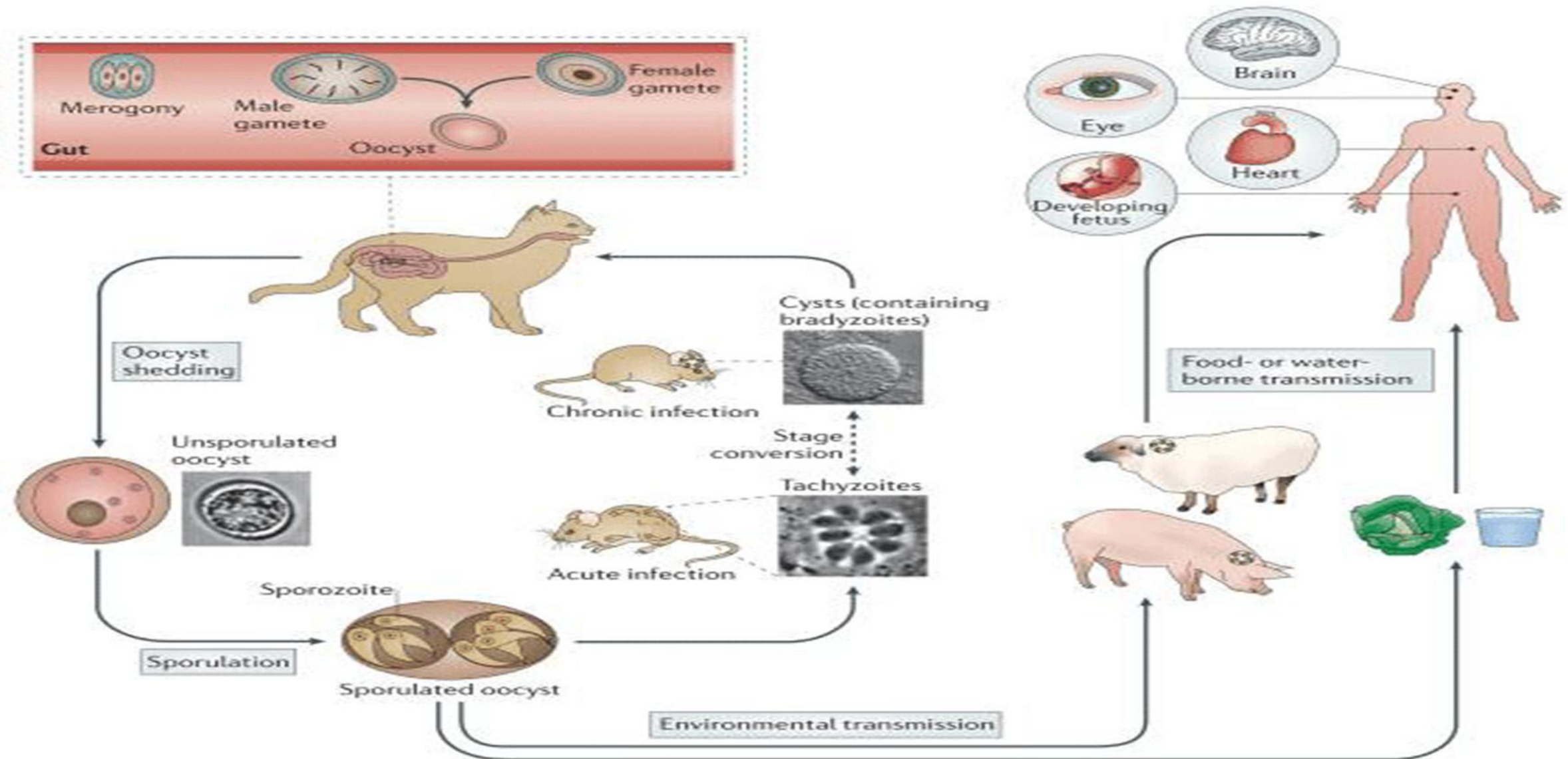
➤ *Toxoplasma gondii* life cycle, divided to two phases :-

### □ A sexual phase :-

- ✓ Once they are ingested, the parasite transforms into rapidly dividing tachyzoites through cycles of asexual multiplication.
- ✓ Microscopic tissue cysts develop containing bradyzoites, which persist for the lifetime of the host.
- ✓ Cats become infected or re-infected by ingesting tissue cysts in prey such as rodents and birds.

# Toxoplasmosis

## ❖ life cycle :-





# Toxoplasmosis

## ❖ Clinical features :-

- ✓ In most immunocompetent individuals, including children and pregnant women, the infection goes unnoticed.
- ✓ In approximately 10% of patients, it causes a self-limiting illness, most common in adults aged 25–35 years.
- ✓ The presenting feature is usually localized or generalized painless lymphadenopathy.
- ✓ The cervical nodes are primarily involved but mediastinal, mesenteric or retroperitoneal groups may be affected.

# Toxoplasmosis

## ❖ Clinical features :-

- ✓ The spleen is seldom palpable.
- ✓ Most patients have no systemic symptoms but some complain of:-
  - ❑ malaise, fever, fatigue, muscle pain, sore throat and headache.
- ✓ Complete resolution usually occurs within a few months, and some patients do not recover completely for a year or more.

# Toxoplasmosis

## ❖ Clinical features :-

### ➤ Congenital toxoplasmosis :-

- ✓ Acute toxoplasmosis, affects 0.3–1% of pregnant women, with an approximately 60% transmission rate to the fetus, which rises with increasing gestation.
- ✓ Seropositive females infected 6 months before conception have no risk of fetal transmission.
- ✓ Congenital disease affects approximately 40% of infected fetuses, and is more likely and more severe with infection early in gestation.
- ✓ Many fetal infections are subclinical at birth but long-term sequelae include retinochoroiditis, microcephaly and hydrocephalus.

# Toxoplasmosis

## ❖ **Complications :-**

- Occasionally occur in immunocompetent patients.
- More frequent in immunocompromised hosts.
- ✓ Encephalitis.
- ✓ Myocarditis.
- ✓ Polymyositis.
- ✓ Pneumonitis.
- ✓ Hepatitis,
- ✓ Retinochoroiditis is usually the result of congenital infection.

# Toxoplasmosis

## ❖ Investigations :-

- ✓ The diagnosis often requires direct detection of parasites in blood, body fluids, or tissues.
- ✓ Indirect detection by serology.

### ❑ Immunoglobulin testing:-

- Often used in pregnant women and immunocompetent individuals.
- Detection of IgG using ELISA test.
- During pregnancy, it is critical to differentiate recent from past infection.
- The presence of high IgG antibodies excludes infection acquired in the preceding 3–4 months.
- The detection of significant levels of Toxoplasma-specific IgM antibody may be useful in confirming acute infection.

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## ❖ Investigations :-

### ❑ Indirect fluorescent antibody test :-

- Detects IgG antibody.
- Most commonly used.
- Recent infection induces a fourfold or greater increase in titer.
- Serology after 1–2 months of the onset of infection, becomes an unreliable indicator of recent infection.
- A false-positive result or persistence of IgM antibodies for years after infection makes interpretation difficult.

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## ❖ Investigations :-

- Negative IgM antibodies virtually rule out acute infection.
- ✓ The presence of Toxoplasma organisms in a lymph node biopsy or other tissue can be detected histo-chemically with T. gondii antiserum.
- ✓ The use of PCR to detect Toxoplasma specific DNA.
- ✓ Imaging studies :- Head Ct scanning is the commonest image in cerebral toxoplasmosis.

# Toxoplasmosis

## ❖ Management :-

- ✓ In immunocompetent, and uncomplicated toxoplasmosis is self-limiting.
- ✓ In immunocompromised, and severe or progressive disease treatment with sulfadiazine, pyrimethamine and folic acid.
- ✓ In pregnant women with established recent infection, spiramycin is given until term.
- ✓ In fetal infection, treatment with sulfadiazine and pyrimethamine plus calcium folinate is recommended.
- ✓ Prophylactic therapy for *T gondii* in patients with AIDS who have CD4 count <100 cells Until they undergo immune reconstitution.



# Toxoplasmosis

## ❖ Prognosis :-

### ➤ In immunocompetent patients;-

✓ have an excellent prognosis.

✓ Lymphadenopathy and others symptoms generally resolve within weeks of infection.

### ➤ In immunodeficient patients :-

✓ Often relapses if treatment is stopped.

✓ Suppressive therapy and immune reconstitution significantly reduce the risk of recurrent infection.

# Toxoplasmosis

## ❖ Prognosis :-

### ➤ In congenital toxoplasmosis :-

✓ Multiple complication may occur, including:-

- Mental retardation.

- Seizures.

- Deafness.

- Blindness.

✓ In congenital acquired toxoplasmosis generally have good prognosis.

**Toxoplasmosis**

**Good Luck**